Yukon Mine Site Reclamation and Closure Policy

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Introduction

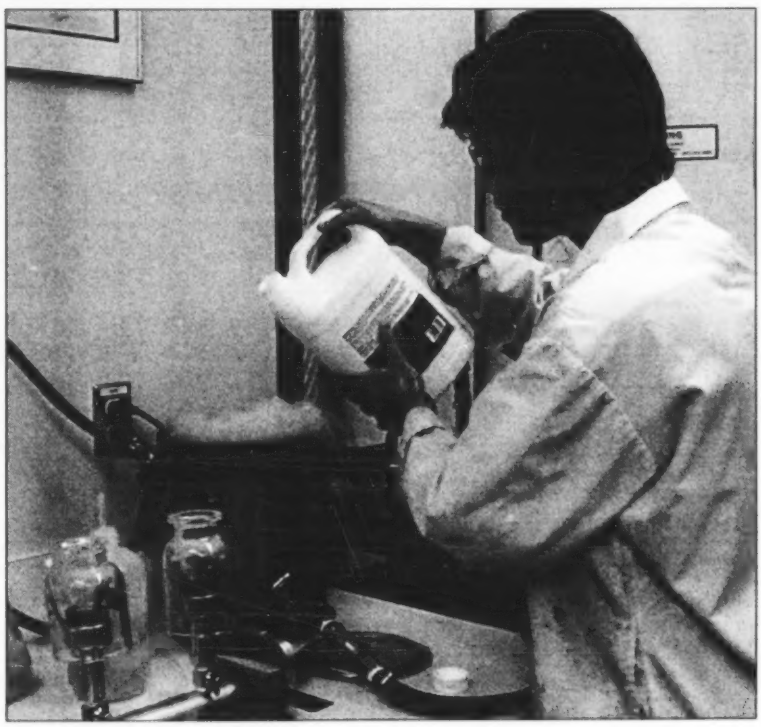
Since the Gold Rush of 1898, mining has featured prominently in building and defining the Yukon's economy, shaping its communities, and contributing to economic development.

Past mining operations were guided by the legislation that existed at the time; however, public expectations and objectives have evolved over the decades. The public expects responsible development will now be based on the principles of sustainable development, including more preventive and comprehensive measures for the protection of the environment and public and worker health and safety. Along with other Canadians, Yukoners also recognize that the public burden for environmental and social costs associated with some past mine closures cannot be repeated.

With devolution of resource management responsibilities in April 2003, Yukon now has the opportunity to develop its own policy that accommodates these public expectations.

The basis of this policy is the clear duty of mine operators to plan, implement and fund mine site reclamation and closure. This includes the requirement for mine operators to provide financial assurance, in the form of security, to contain the public risk for site reclamation and closure costs.

This mine reclamation and closure policy reflects the Yukon government's objectives in the areas of environmental protection, responsible economic development and fiscal responsibility. It is the aim of the Yukon government to provide policy and regulatory clarity regarding mine reclamation and closure matters, so that projects can be developed and managed in a responsible manner while contributing to the Yukon economy.



Mining inspector working in laboratory.

Application

This policy applies to hard rock (quartz) mines in the Yukon that are on mineral claims, leases and Crown grants developed pursuant to the *Quartz Mining Act*. The policy applies to reclamation and closure related activities occurring during development, operation and closure of a hard rock mine.

This policy does not apply to prospecting, grassroots exploration or advanced exploration activities on a mineral property. It also does not apply to placer exploration activity or placer mines. These activities are subject to other policies and regulatory requirements that are different from hard rock mining.

This policy is not intended to address historic liabilities at a mine; however, this policy will be brought to bear to the extent applicable when such circumstances exist in relation to a mineral property.

The Yukon government will ensure that all aspects of this policy, as they are applicable to each mine, are implemented through the appropriate regulatory authorizations.

This policy provides guidance in implementing the *Quartz Mining Act* and *Waters Act*. Furthermore, this policy is intended to allow consistency respecting aspects of mine reclamation and closure requirements governed by different legislation and delivered by different Yukon government agencies.

For greater certainty, nothing in this policy or guidelines made under it authorizes a person to contravene any act, regulation, any provision of a license or order made pursuant to those. If there is a conflict between legislation, licenses and this policy, the requirements of the legislation and/or license will prevail. Where terms used in this policy are defined in the *Quartz Mining Act*, those definitions apply in this policy. For this policy, the term "mine operator" used in this policy refers to a person or entity who holds a quartz license or other regulatory authorization for quartz development and mining purposes.

Brewery Creek pit lake.

The Policy

The Yukon Mine Site Reclamation and Closure Policy for New Mines consists of our Vision, Goals and our Implementation Principles.

Vision

Our vision is responsible and progressive mine reclamation and closure in the Yukon, conducted in a manner that fosters sustainable development and a healthy environment.

Our Goals

Our goals are to:

- ensure the development and viability of a sustainable, competitive and healthy quartz mining industry that operates in a manner that upholds the essential socio-economic and environmental values of the Yukon;
- ensure mine operators manage their mine sites in an environmentally sound manner and reclaim these sites to meet the principles stated in this policy;
- fully protect public and environmental health and safety and ensure that any potential discharges during mine operation and following mine closure will be managed to prevent harm to the receiving environment or to the public;
- ensure a government-approved reclamation and closure plan, prepared by the mine operator, to return the mine site to a viable and, wherever practical, self sustaining ecosystem, is in place prior to mine development;
- ensure any approved reclamation and closure plan is updated by the mine operator periodically to reflect results of new information, such as ongoing environmental and technical studies, changes to operations, and progressive reclamation, and that this updated plan is approved by government and financial security requirements are adjusted accordingly; and
- ensure mine operators provide financial assurance in the form of security and that the cost of reclamation (including but not limited to shutdown, closure and post-closure, and related environmental monitoring in the approved reclamation and closure plan) is met by the mine operator.

Implementation Principles

The following principles respecting mine site reclamation and closure provide proponents, regulators and Yukon government agencies with certainty, clarity and consistency regarding expectations of the Yukon government for mine reclamation and closure.

1. General

The mine operator is responsible for the reclamation, care, maintenance and abandonment of the site in accordance with the existing legislative framework and the goals and principles in this policy and accompanying guidelines. Every mine operator is required to fully fund the cost of reclamation and closure in a manner set forth in this policy.

Reclamation and closure planning and implementation should provide for progressive reclamation to the greatest extent practical during mining operations.

The precautionary approach will be used in reclamation and closure planning.

The adaptive management approach is recognized as a valuable tool for reclamation and closure planning.

Revegetation at former mine site.

Reliance on long term active treatment is not considered acceptable for reclamation and closure planning.

The implementation of this policy should be carried out in a manner that recognizes the value of mining to the social and economic advancement of Yukon.

2. Reclamation Planning

Mine site reclamation and closure measures will be incorporated into the planning, development and operation of a mine.

Every mine will have an approved reclamation and closure plan that has been approved by the Yukon government before proceeding with development.

Every approved reclamation and closure plan will provide for measures to be taken in the event of a temporary and/or seasonal closure.

The reclamation and closure plan will be developed by the mine operator, who is encouraged to seek the views of all relevant Yukon government departments, affected First Nations, local communities and stakeholders in developing the plan.

The reclamation and closure measures selected should be based upon best practicable technology supported by current and comprehensive technical information. Reclamation and closure plans should be designed to incorporate new and improved technologies and/or methodologies as appropriate. The use of "leading edge" technological and scientific measures is encouraged when supported by feasibility assessments showing technical and economic viability in the Yukon.

Every reclamation and closure plan will incorporate ongoing environmental and technical studies that have clear objectives, completion dates and reporting requirements.

Reclamation at Brewery Creek Mine.

A monitoring plan to assess the effectiveness of reclamation and closure strategies will be maintained and implemented by the mine operator to provide the framework for progressive reclamation activities and plan adjustments as needed.

Mine reclamation and closure plans will be refined and updated as results of the study plan and monitoring programs are obtained.

3. *Certificate of Closure*

As per section 137 of the *Quartz Mining Act*, a Certificate of Closure shall be issued by the Yukon government on written application by the mine operator where the Yukon government is satisfied that a development or production activity has been terminated and the mine operator has complied with all conditions of the license and of Part II of the *Act* and the regulations made under it.

The Yukon government will consult with the mine operator, affected First Nations, local communities, and interested stakeholders prior to issuing a Certificate of Closure.

4. Financial Assurance

At any point in time, the outstanding mine reclamation and closure liability is determined as the total of the costs for:

a. a third party contractor for reclamation and closure of those physical disturbances at a mine site not yet reclaimed, as of that point in time, in accordance with the approved reclamation and closure plan or approved updated reclamation and closure plan, plus reasonable contingencies for the uncertainties in the costs to conduct these tasks;

b. reasonable mitigative contingencies for additional remedial actions that may be required for both the progressive reclamation work done up to that point in time and the reclamation work needed in 4(a) above; and

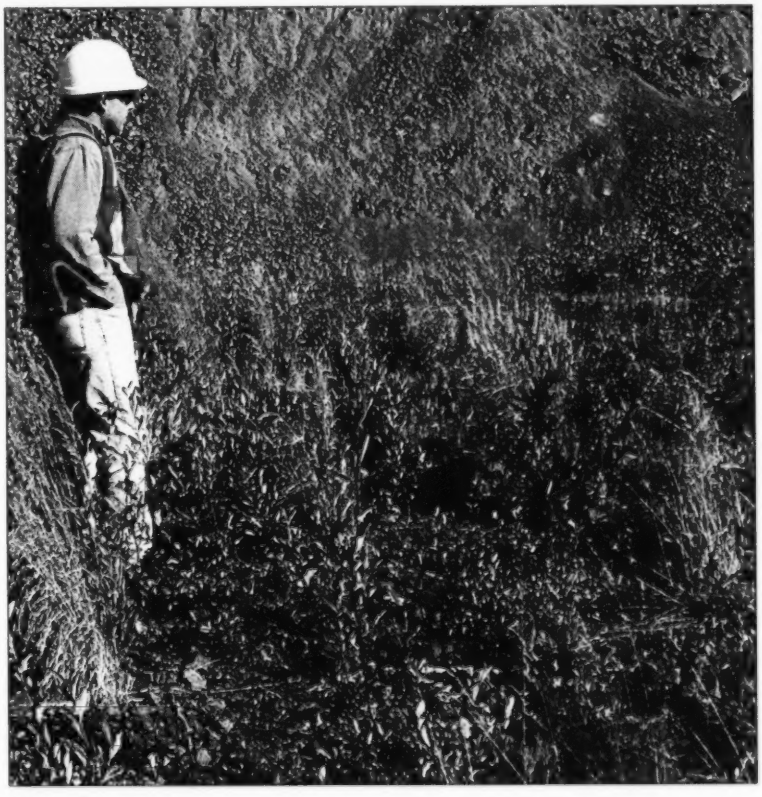
c. the net present value for funds required for future monitoring and maintenance programs to support the reclamation and closure work done up to that point in time and to support the additional reclamation and closure work needed in 4(a) above.

The determination of the outstanding mine reclamation and closure liability associated with technical features and structures must be sealed by a professional engineer licensed to practice in Yukon.

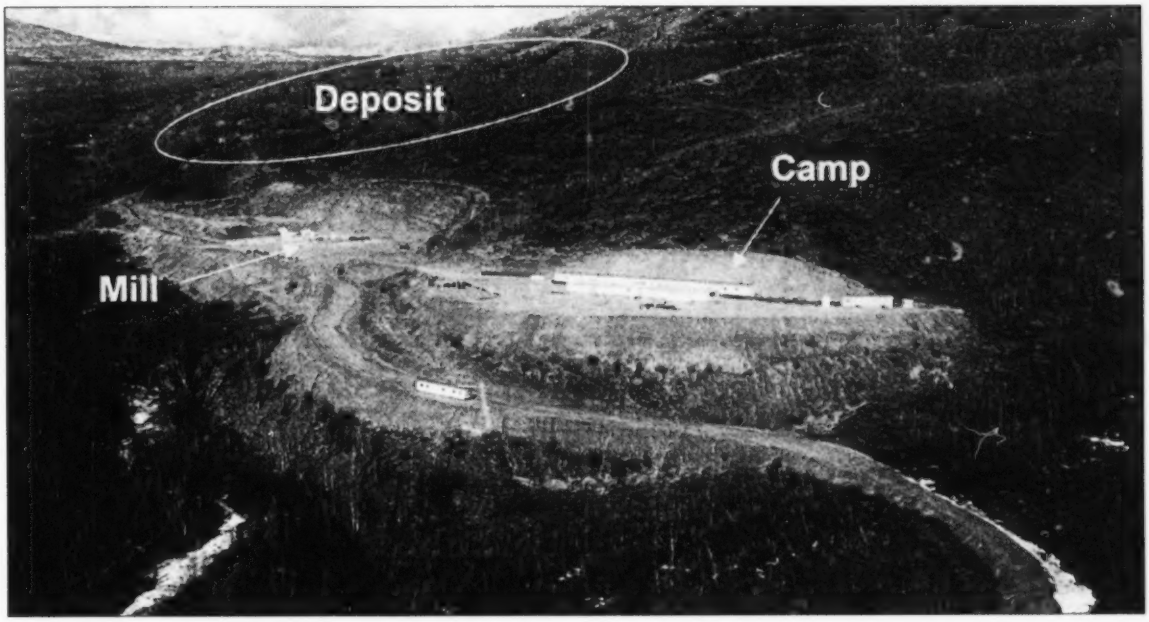
The Yukon government will determine the form and amount of security to be provided by the mine operator to cover the full amount of outstanding mine reclamation and closure liability.

The Yukon government will ensure that security is maintained at all times to provide for the outstanding mine reclamation and closure liability and to prevent lapses in the ability of government to access this security if and when it may be required.

Financial security held by the Yukon government for mine reclamation and closure activities will be comprised of an initial payment, prior to commencement



Natural revegetation.



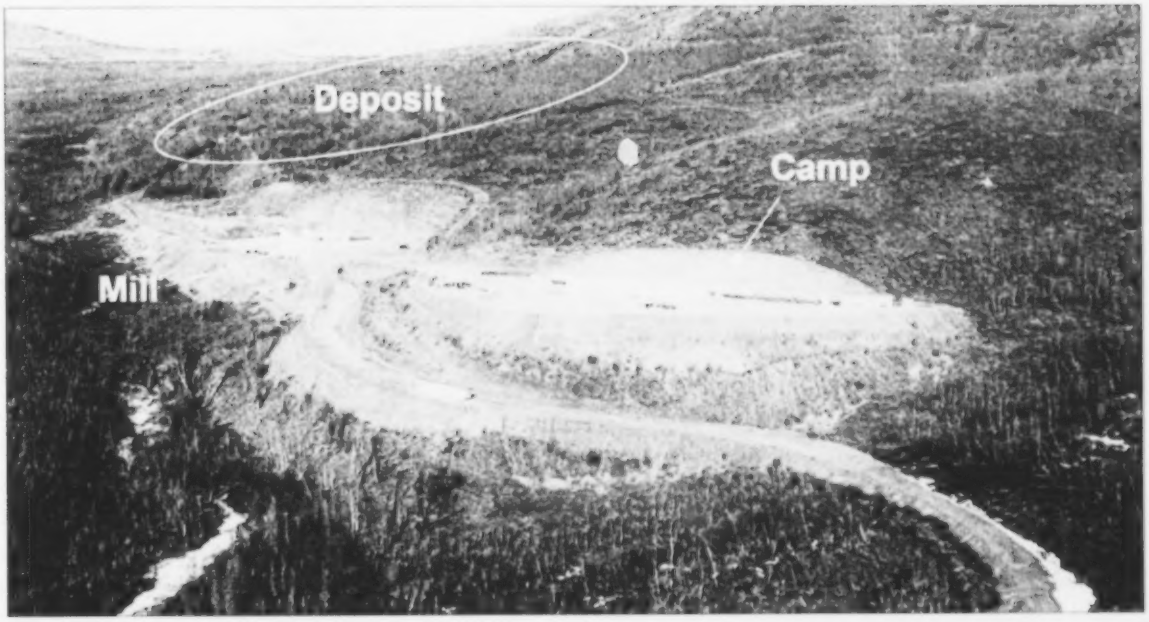
Sherwood Copper Corporation's copper-gold Minto mine site.

of development, and a periodic adjustment to ensure that full security is held for outstanding mine reclamation and closure liability throughout the development, operation and closure of a mine.

Security for mitigative contingencies will be required for higher risk components, and, if required, the amount will be based on the risk assessment provided by the mine operator and on site conditions. The Yukon government may conduct its own risk assessment and will determine the amount required for mitigative contingencies. Disputes between the Yukon government and the mine operator regarding such risk assessment may be referred to a dispute resolution mechanism.

The financial assurance instrument for mine reclamation and closure shall provide the Minister with a reasonable ability to access the full security at any time that the Minister, acting reasonably, may determine the funds are needed. Consideration may be given to alternate (non cash) forms of financial assurance for lower risk components of a project, provided these forms meet certain criteria that protect the Yukon government's interests and objectives. Forms of financial assurance will be reasonable, flexible and responsible.

Progressive reclamation may reduce the amount of financial security required to be provided and maintained by the mine operator. If progressive reclamation results in an overall lowering of outstanding mine reclamation and closure liability at the mine site, security will be reduced accordingly. However, if the outstanding mine reclamation and closure liability increases, mine operators will provide additional financial security.



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Mining Inspections.

5. Risk Assessment

A "risk management" approach may be utilized in the development of the reclamation and closure plan by the mine operator. This approach should take into consideration ecological, human health, socio-economic considerations and engineering factors and be designed to enable the mine operator and Yukon government agencies to fully understand the likelihood and consequence of failure in order to assess reclamation and closure options and to ensure that risks associated with implementing the mine reclamation and closure plan are addressed to the satisfaction of the Yukon government.

6. Government Decision-making and Accountability

Reclamation and closure requirements will be as clear and predictable as possible, to minimize uncertainty for industry and the Yukon government. These requirements will also be transparent and accessible to the public.

Yukon government agencies will ensure that communication and engagement with proponents, affected First Nations and applicable non-government organizations is comprehensive, transparent and timely.

There will be, to the greatest extent possible, co-ordination among the various Yukon government departments and agencies with responsibility for the management of lands and water to facilitate the consistent application of this policy, particularly as it relates to the provision of financial assurance for outstanding mine reclamation and closure liability.

The Yukon government will review the effectiveness of this policy every five years. Appropriate adjustments to the policy will be made to ensure that it is effective.

7. Dispute Resolution Mechanism

The Yukon government will participate in a dispute resolution process to address disputes between the mine operator and government agencies related to reclamation and closure matters. In the event of a dispute, the first level of review will be undertaken by the Deputy Ministers' Oversight Committee (DMOC), comprised of Deputy Ministers from the Executive Council Office, Departments of Environment and Energy, Mines and Resources. Guidance will be provided to identify the scope or nature of disputes that may be referred to DMOC.

Implementation Guidelines

In order to implement our Policy, the following section provides guidelines and a general explanatory framework. This should assist governments, mine owners and others to better understand the context of the policy and to implement it in a fair and consistent manner. The implementation guidelines will be supported by more detailed technical and financial guidelines.

Land treatment inspections.

1. Reclamation Planning

Where feasible and practical, mine reclamation and closure activities will provide economic benefits to local communities and First Nations, particularly those most affected by the mine and its closure.

Scientific, traditional and local knowledge will be considered by mine operators and Yukon government agencies in mine reclamation and closure planning and implementation.

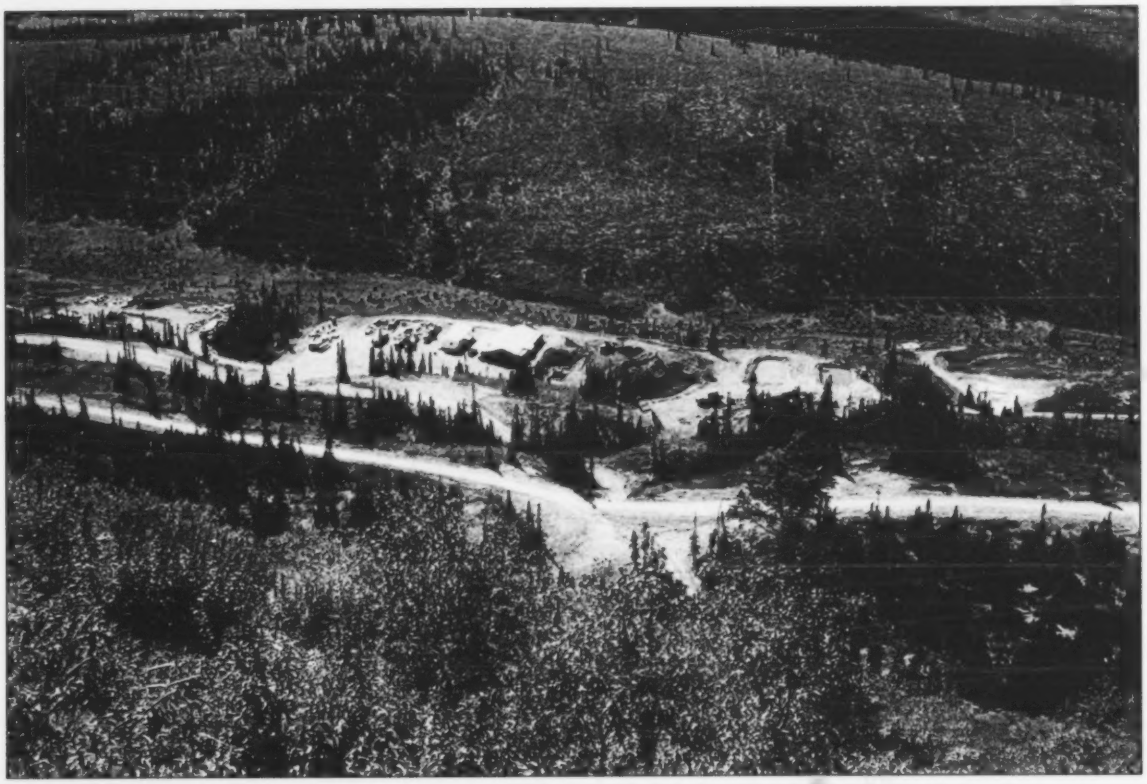
Temporary and/or seasonal closure plans will be reviewed and approved by the Yukon government. These plans will include among other things a monitoring and reporting program for the duration of the temporary closure period.

The Yukon government will ensure that, after an appropriate period of temporary closure, the mine operator will either seek an extension of the temporary closure period, or will implement the approved reclamation and closure plan.

2. Elements of a Reclamation and Closure Plan

A reclamation and closure plan should fully address, but not be limited to, the following:

- Reclamation objectives, including closure design criteria;
- The progressive reclamation of the site during the life of the operation;
- The removal or stabilization of any structures and workings;
- The design standards for reclamation and closure of tailings and waste rock disposal areas;
- The reclamation and re-vegetation of the surface disturbances wherever practicable;
- Methods for protection of water resources during and after mine closure;
- A cost estimate of the work required to close and reclaim the mine;



Yukon Zinc's Wolverine property.

- An environmental monitoring plan; and
- A plan for ongoing and post closure monitoring and reporting at the site.

Plans should identify technically and economically feasible methods of decommissioning and reclaiming mine components within reasonable timeframes.

3. *Reclamation Guidelines*

The Yukon government will develop and use guidelines where these would assist a mine operator in understanding and designing reclamation and closure requirements.

Guidelines will be developed and maintained providing greater clarity to the definition of long term active treatment.

Guidelines should provide for the application of best management practices and best available technologies that meet the overall site closure objectives.

The Yukon government will utilize performance objectives as much as possible in determining if the proposed reclamation and closure methods proposed by the mine operator will provide for satisfactory mine closure.

4. *Reporting and Updating of Plans*

Reclamation and closure plans will be updated by the mine operator periodically throughout the entire mine life. The frequency of updating will be commensurate with the phase of development and reclamation activity and at least every five years.

Circumstances that will trigger an update of the reclamation and closure plan by the mine operator include, but are not limited to:

- Expansion of the mine not contemplated in the development of the existing plan;
- Change in reclamation procedures identified as a result of studies or more cost effective methods; and
- The identification of unforeseen, significant hazards or operational changes.

The plan update should demonstrate among other things how legal requirements have been met, what reclamation has been undertaken and how reclamation is performing in relation to approved reclamation and closure objectives contained in the mine reclamation and closure plan.

The Yukon government will ensure appropriate mechanisms are incorporated in licenses to review these updated reclamation and closure plans and to require additional information if necessary. To the greatest extent possible, regulators will agree on a schedule, procedures and elements for review of these updated plans to ensure coordination of effort and consideration of the mine operator's view.

The mine operator will be required to provide an annual reclamation status report. Such a status report should include details on the progressive reclamation work performed that year, adaptive responses to unforeseen occurrences or changes on the property, and any updates on the status of studies, results and implications to future studies and reclamation measures.

Natural vegetation.

5. Financial Security

Every 24 months, unless specified otherwise by the Yukon government, the mine operator will submit to government an estimate, prepared by a professional engineer licensed to practice in the Yukon, of the outstanding mine reclamation and closure liability as well as the expected change in mine reclamation and closure liability over the next 24-month period. The Yukon government will make the final decision on the total outstanding mine reclamation and closure liability.

The Yukon government will ensure that security held will be commensurate with the outstanding mine reclamation and closure liability at any time during the 24-month period noted in the previous paragraph. This may require additional financial security being posted.

If the outstanding reclamation and closure liability increases, government may approve short term measures to address immediate site mitigation that offsets the increased liability rather than requiring additional financial security being posted by the mine operator.

Mining inspector sampling water at Mechanic Creek.

Circumstances that may require the Yukon government to review the outstanding mine reclamation and closure liability at any time other than the 24-month review include, but are not limited to:

- successful completion of reclamation during the previous period;
- significant changes to the likelihood and consequences of failure of reclamation features;
- reclamation efforts not being successful;
- unexpected results of new environmental studies and/or monitoring programs; and
- significant new work at the site that was not previously contemplated being required.

Security for reasonable mitigative contingencies may also be required and the amount will be based on the risk assessment and on site conditions.

The Yukon government may enter into an administrative agreement with the mine operator to adjust security. This administrative agreement may include the development of a security release schedule that will be adjusted as reclamation work is implemented.

If the outstanding mine reclamation and closure liability is reduced and financial security can be released, the Yukon government will do so on a timely basis. Prior to any such release, the Yukon government will take into consideration the risks associated with remaining liabilities as well as past corporate performance.

In accordance with the *Quartz Mining Act*, in the event of a sale or other transfer of the mine property, the Yukon government shall only authorize the assignment of a license if the prospective assignee furnishes any security required, undertakes in writing to comply with the license and the Yukon government is satisfied that the assignment will not be likely to result in a contravention of any condition of the license.

The mine operator will maintain financial security acceptable to the Yukon government during any temporary closure.

Winter flow measurements at Fifty Mile.

6. *Post Closure Reclamation and Final Decommissioning*

Once reclamation and closure work is complete, monitoring will be conducted by the mine operator with respect to the effectiveness of the mitigation measures. The duration of the required monitoring phase will depend on the risks associated with the potential impacts on the environment. The monitoring plan will be an element of the approved closure plan.

The Yukon government will continue to hold an appropriate amount of security to cover future monitoring costs, maintenance requirements and any mitigative contingencies, including holdbacks for stabilization and verification requirements, until the success of the reclamation effort for critical components has been ascertained. Release of this security may be addressed pursuant to an administrative agreement.

Mine operators are responsible for post closure reporting and compliance.

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